

25X1

CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

REPORT

25X1

CD NO.

COUNTRY USSR (Moscow Oblast)

DATE DISTR. 30 June 1955

SUBJECT Remote Control System Developed at MVD
Installation No. 14 in Moscow

NO. OF PAGES 5

PLACE
ACQUIREDNO. OF ENCLS.
(LISTED BELOW)DATE OF
INFO.SUPPLEMENT TO
REPORT NO.

25X1

THIS IS UNEVALUATED INFORMATION

25X1

25X1

Attached is forwarded as received.

25X1

25X1

Comment: The experts listed in the Annex to the attached report
may be identical with the following:

25X1

- I Sergey Lisitsyn
- II Hannes Seemann
- III Christian Sorge
- IV Wilhelm Strauss
- V Herbert Dominik
- VI Hans Goldberg
- VII Fritz Klaiber
- VIII Bruno Franz Theodor Golecki

25X1

C-O-N-F-I-D-E-N-T-I-A-L

CLASSIFICATION

STATE	X	NAVY	X	NSRB		OSI	ev	X											
ARMY	X	AIR	X	FBI															

25X1

25X1

CLASSIFICATION ~~CONFIDENTIAL~~

NOFORN/

COUNTRY

ISR

REPORT

TOPIC Remote Control System Developed at MVD Special Object No 14 in Moscow

25X1

EVALUATION

PLACE OBTAINED

25X1

DATE OF CONTENT

DATE OBTAINED

DATE PREPARED 6 May 1955

REFERENCES

25X1

PAGES 2 ENCLOSURES (NO. & TYPE) 1 - one sketch,

with legend on ditto

REMARKS

25X1

This is UNEVALUATED Information

25X1

1. During the post war years, the Komet remote control system was developed at MVD Special Object No 14 in Moscow. Technical details on the Komet remote control system included the following:
 - a. The B-side of the receiver unit which received the beams reflected by the target had a sensitivity of up to 98 db. About 3 db were required by the selector tuning apparatus. During the laboratory test, the amplification obtained by all units was more than -90 db which exceeded the required specifications.
 - b. The mixer detector was protected against overloading by means of motor driven damping discs in the wave guide forward of the B mixer. Other ways to solve this problem were being considered.
 - c. Both receiver units were equipped with one mutual oscillator. The klystrons used were Soviet made American types and products of the Oberspreewerk in Berlin-Oberschoeneweide.
 - d. Soviet produced silicon crystal diodes which were rather good in quality were used as mixer diodes with the unit. Continuous experiments were made with other types of diodes, but no information was obtained on these activities.
 - e. The I.F. amplifier of the A-side was a four-stage unit with band filters and operated with an I.F. of 40 mc/s, while the I.F. amplifier of the B-side was a six-stage unit with cascade input and series-tuned circuits with an I.F. of 40 mc/s. The band width was 2.5 mc/s and the sensitivity about $3\mu V$. The 6AG7 type tubes used in the beginning were later replaced by Soviet tubes which were about equal to the 6 AK5.

C-O-N-F-I-D-E-N-T-I-A-L

25X1

CLASSIFICATION CONFIDENTIAL - U.S. OFFICIALS ONLY

CONFIDENTIAL - U.S. OFFICIALS ONLY

25X1

- 2 -

-3-

- f. The B-antenna rotated at 75 cycles. The synchronization of the A-side was first effected by "switched" impulses and then for a while by phase modulation of the impulse series which simplified the system. The modulation frequency was 30 c/s and the phase modulation $\pm 20\%$. The synchronization of the B-part was effected by mechanical coupling with the antenna motor.
- g. The ring modulator which had first been used with the phase demodulator was replaced by two polarized Siemens type telegraph relays to effect commutation. The exciting coils were actuated by the reference phase which, in turn, was produced by the phase modulation of the transmitter impulse series or by the antenna motor respectively.
- h. The ratio of input field intensity front to rear antenna required to actuate the switch over from part A to part B could be effected by any adjustable voltage, produced by the rectification (demodulation) of the selected impulses at about -38 db. No information was available on any measures taken to prevent disturbances of the B-side caused by direct reception from the transmitter.
- i. It was expected that, as a result of target reflection, deflected polarization would cause disturbances, and countermeasures were therefore considered. Detailed work on this problem was to be started during or after the practical experiments.
- k. Komet 1 and 2 differed essentially in their electric units. The Komet 3 was only simplified by the omission of some details and showed some improvements. For experimental purposes, the Komet 3 guide system was converted from pursuit curve to lead system. Development work on the Komet 1 was started in 1947/1948, on Komet 2 in 1948/1949 and on Komet 3 in 1949/1950.
- l. The magnetrons and impulse tubes used for the transmitter were Soviet developments which were closely related to American and English types.
- m. The central impulse generator unit was equipped with a quartz controlled sine wave generator from which the switching and key impulses were deducted. No multivibrators were installed.
- n. Measuring instruments for 1-cm wave lengths were not yet available at the institute, but were to be supplied in the summer of 1951 together with component parts for 1-cm units.
2. As far as remembered, the system was designed for a basic speed of the mother aircraft of 900 km/h and a accordingly higher speed of the missile.
3. [redacted] at Special Object No 14, it appeared that work on the same or a closely related project was being continued. 25X1
- [redacted] Comment. [redacted] 25X1
- [redacted] . For a detailed schematic diagram of the unit, see Annex. 25X1

CONFIDENTIAL - U.S. OFFICIALS ONLY

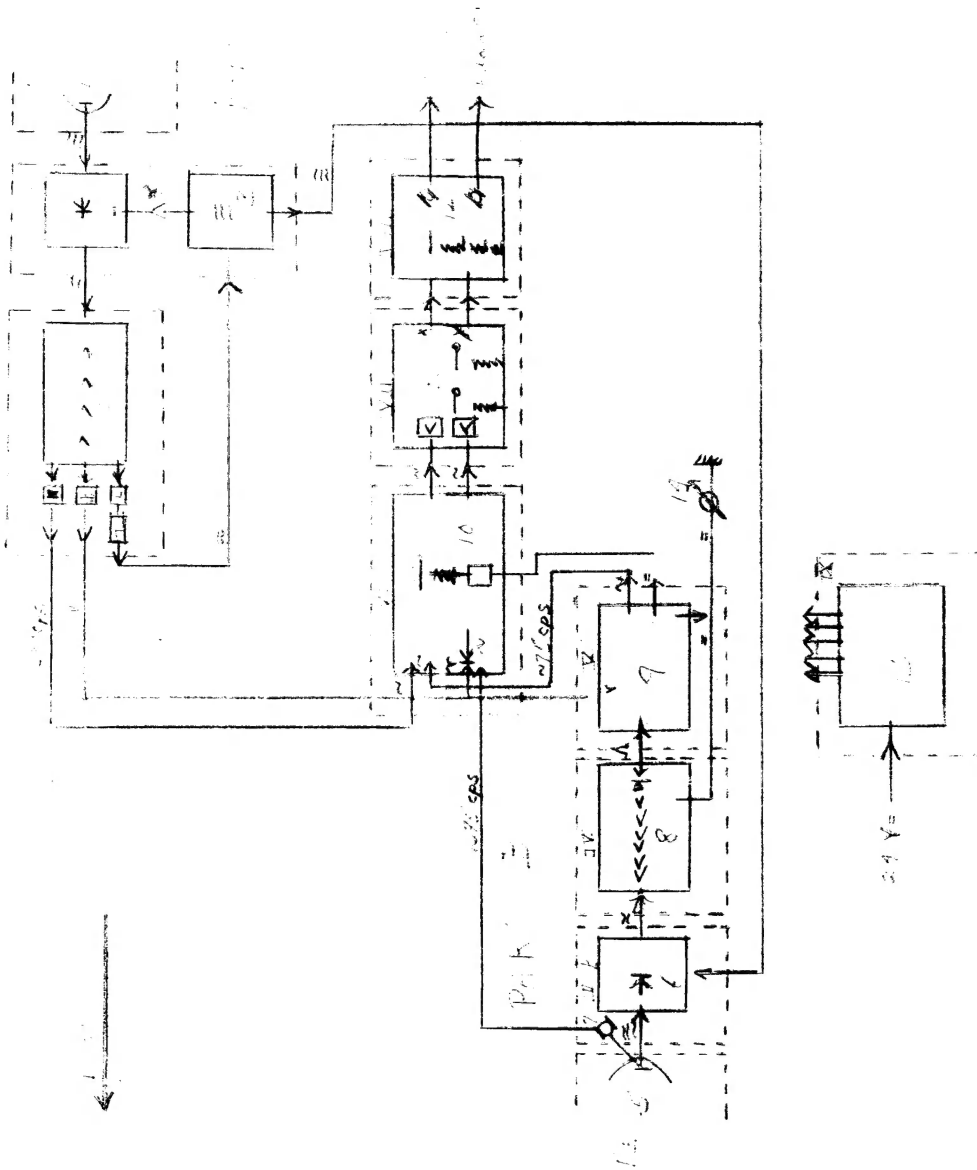
25X1

C-O-N-F-I-D-E-N-T-I-A-L

25X1

-4-

Legend: see next page



C-O-N-F-I-D-E-N-T-I-A-L

25X1

CONFIDENTIAL - U.S. OFFICIALS ONLY

Annex

25X1

- 2 -

-5-

Schematic Diagramm of the Komet 3 Remote Control System, Unit in the Missile

Legend.

- 1 A-antenna
- 2 ~~AA~~ part mixing unit
- 3 Oscillator
- 4 A part IF amplifier
- 5 B antenna
- 6 B part mixing unit
- 7 Complete motor of antenna
- 8 B part IF amplifier
- 9 Selector
- 10 Change over and synchronizing stage
- 11 Phase commutator
- 12 Control stage with servo units for elevator assembly and rudder
- 13 Power unit
- 14 Control instrument

Experts who developed the individual parts:

- I Lisitzin (fnu)
- II Seemann (fnu)
- III Sorge (fnu)
- IV Strauss (fnu)
- V Dominik (fnu)
- VI Goldberg (fnu)
- VII Klaiber (fnu)
- VIII Golecki (fnu)
- IX Goldberg (fnu)

CONFIDENTIAL - U.S. OFFICIALS ONLY

25X1

ILLEGIB

Page Denied

Next 1 Page(s) In Document Denied

CONFIDENTIAL

25X1

-3-

- f. The B-antenna rotated at 75 cycles. The synchronization of the A-side was first effected by "switched" impulses and then for a while by phase modulation of the impulse series which simplified the system. The modulation frequency was 30 c/s and the phase modulation $\approx 20\%$. The synchronization of the B-part was effected by mechanical coupling with the antenna motor.
 - g. The ring modulator which had first been used with the phase demodulator was replaced by two polarized Siemens type telegraph relays to effect commutation. The exciting coils were actuated by the reference phase which, in turn, was produced by the phase modulation of the transmitter impulse series or by the antenna motor respectively.
 - h. The ratio of input field intensity front to rear antenna required to actuate the switch over from part A to part B could be effected by any adjustable voltage, produced by the rectification (demodulation) of the selected impulses at about -38 db. No information was available on any measures taken to prevent disturbances of the B-side caused by direct reception from the transmitter.
 - i. It was expected that, as a result of target reflection, deflected polarization would cause disturbances, and countermeasures were therefore considered. Detailed work on this problem was to be started during or after the practical experiments.
 - k. Komet 1 and 2 differed essentially in their electric units. The Komet 3 was only simplified by the omission of some details and showed some improvements. For experimental purposes, the Komet 3 guide system was converted from pursuit curve to lead system. Development work on the Komet 1 was started in 1947/1948, on Komet 2 in 1948/1949 and on Komet 3 in 1949/1950.
 - l. The magnetrons and impulse tubes used for the transmitter were Soviet developments which were closely related to American and English types.
 - m. The central impulse generator unit was equipped with a quartz controlled sine wave generator from which the switching and key impulses were deducted. No multivibrators were installed.
 - n. Measuring instruments for 1-cm wave lengths were not yet available at the institute, but were to be supplied in the summer of 1951 together with component parts for 1-cm units.
2. As far as remembered, the system was designed for a basic speed of the mother aircraft of 900 km/h and a accordingly higher speed of the missile.
 3. 25X1
 at Special Object No 14, it appeared that work on the same or a closely related project was being continued. 25X1
- Comment. 25X1
 For a detailed schematic diagram of the unit, see Annex.

CONFIDENTIAL

25X1

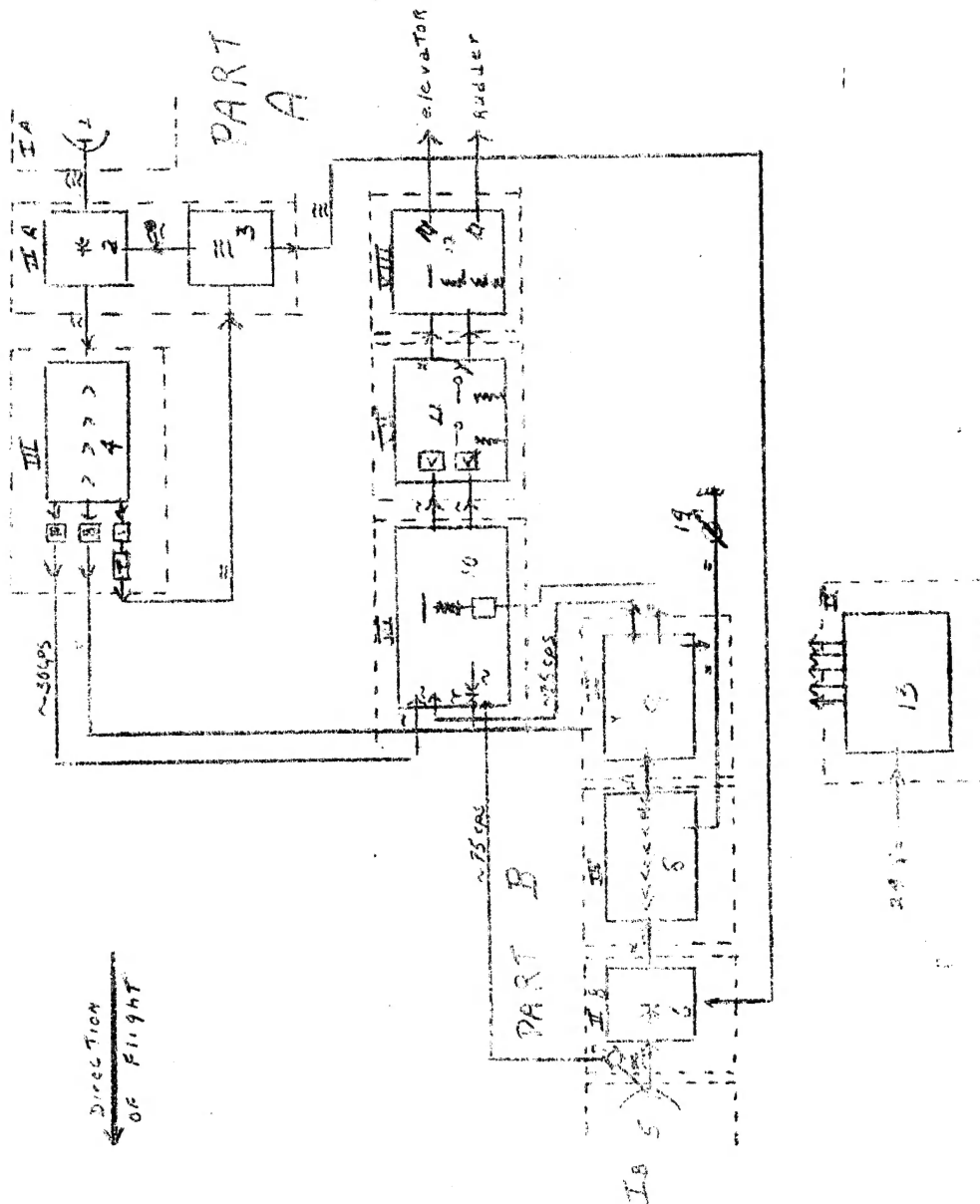
C-O-N-F-I-D-E-N-T-I-A-L

25X1

Annex

-4-

Legend: see next page



C-O-N-F-I-D-E-N-T-I-A-L

25X1

CONFIDENTIAL

ANNEX

25X1

-5-

Schematic Diagramm of the Komet 3 Remote Control System. Unit in the Missile:

Legend.

- 1 A-antenna
- 2 A part mixing unit
- 3 Oscillator
- 4 A part IF amplifier
- 5 B antenna
- 6 B part mixing unit
- 7 Complete motor of antenna
- 8 B part IF amplifier
- 9 Selector
- 10 Change over and synchronizing stage
- 11 Phase commutator
- 12 Control stage with servo units for elevator assembly and rudder
- 13 Power unit
- 14 Control instrument

Experts who developed the individual parts:

- I Lisitzin (fnu)
- II Seemann (fnu)
- III Sorge (fnu)
- IV Strauss (fnu)
- V Dominik (fnu)
- VI Goldberg (fnu)
- VII Kleiber (fnu)
- VIII Golecki (fnu)
- IX Goldberg (fnu)

CONFIDENTIAL

25X1